35 U.S.C. §112 Rejection

Claims 8, 11 and 14 were rejected under 35 U.S.C. §112 first paragraph as not described in the specification. Applicant submits that this rejection is now moot in view of the foregoing amendment since the subject matter of claims 8, 11 and 14 is no longer present in pending claims 15-22. Therefore, Applicant respectfully requests that this rejection be withdrawn.

35 U.S.C. §102 Rejections

Claims 1-11 were rejected under 35 U.S.C. §102(e) as anticipated by Rosenblatt (U.S. Patent 5,944,970) having a filing date of 29 April 1997. The Examiner contends that Rosenblatt also discloses "a structure for scavenging ions or charged molecules integrated circuitry." The Examiner then looked for other elements or functional equivalents in each of the remaining rejected claims. Applicant submits that the foregoing amendment obviates this rejection

Rosenblatt also addresses the problem of semiconductor devices (solid state electrochemical sensors) that are in contact with ionic solutions. The problem addressed by the present invention and in Rosenblatt is similar. However, the solutions to the problem invented by Applicant and Rosenblatt are quite different and patentably distinct. Rosenblatt's disclosure describes "a layer of silicon dioxide on the upper surface of a polysilicon guard layer" (see Brown column 3). This is illustrated in the passages cited by the Examiner in "a chemically sensitive membrane 104" and in a "degenerately doped P+ diffused guard ring layer 106 [is] located below the polysilicon layer." Accordingly, Rosenblatt applies membrane-type layers to protect the electrical elements in a semiconductor.

The present invention, by contrast, (see claim 15) requires "an electric field within the layer of substrate material" as its means for protecting the semiconductor device from ion doping from an ionic solution. Therefore, the solutions provided by Rosenblatt and the presently claimed invention are distinct. Accordingly, claims 15-22 are not anticipated by Rosenblatt.

Additionally, applicants submits that Rosenblatt is not prior art to the pending claims as its filing date is after the effective priority dates of this CIP patent application.

Claims 1-4 and 12-14 were rejected under 35 U.S.C. §102 as anticipated by Brown. The Examiner contends that Brown also discloses "a structure for scavenging ions in integrated circuitry" by "a material (figure 3) capable of reacting with ions" proximate to the source of ions. However, the Examiner also contends that the "material" generates an electric field and is an inorganic semiconductor. With regard to the MOS gate of clams 12-14, that subject matter is no longer pending. Applicant submits that the foregoing

amendment obviates this rejection because Brown does not disclose or suggest all of the elements of pending claims 15-22.

Brown discloses adding gettering materials to "getter" mobile ion contaminants "diffusing out of the conductor into the semiconductor device." Therefore, Brown looks to the problem of diffusion of ions from conductive materials on or in the semiconductor device. It should be noted that the present invention addresses the problem of ions from an ionic solution contaminating the semiconductor device wherein the semiconductor device. Moreover, it should be noted that claim 15 (independent claim) requires that the semiconductor device contain an electrode (a conductive material), yet the electric field formed is not designed to "getter" any contaminating ions from the electrode, only from an ionic solution. Therefore, Brown does not anticipate pending claims 15-22.

Moreover, applicant respectfully disagrees with the Examiner's characterization of Brown as disclosing that "material 4 generates an electric field." That is untrue. Brown does not disclose or suggest an electric field. Brown teaches away from an electric field by disclosing a chemical getter ("The chromium acts as a getter to reduce the diffusion of mobile ion contaminants from the metal conductors into the insulating layers of the device." Column 3 second full sentence). Therefore, the required element of an electric field is not disclosed or taught in Brown. Accordingly, Brown does not anticipate claims 15-22. Applicant respectfully requests withdrawal of this rejection.

CONCLUSION

In view of the foregoing amendment and remarks, applicant respectfully requests withdrawal of all rejections, and allowance of pending claims 15-22. Should any questions arise in connection with this submission which may be resolved by a telephonic interview, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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